Service Manual

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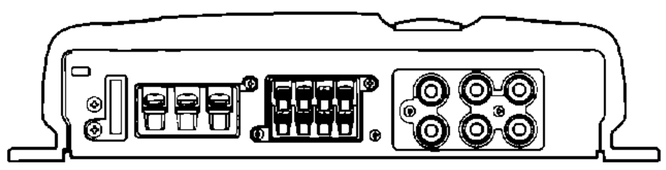

ORDER NO.
CRT1941

BRIDGEABLE FOUR-CHANNEL POWER AMPLIFIER

GM-X414 X1H/UC, X1H/ES

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should mot risk trying to do so and refer the repair to a qualified service technician.

UC model

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

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2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING METHOD

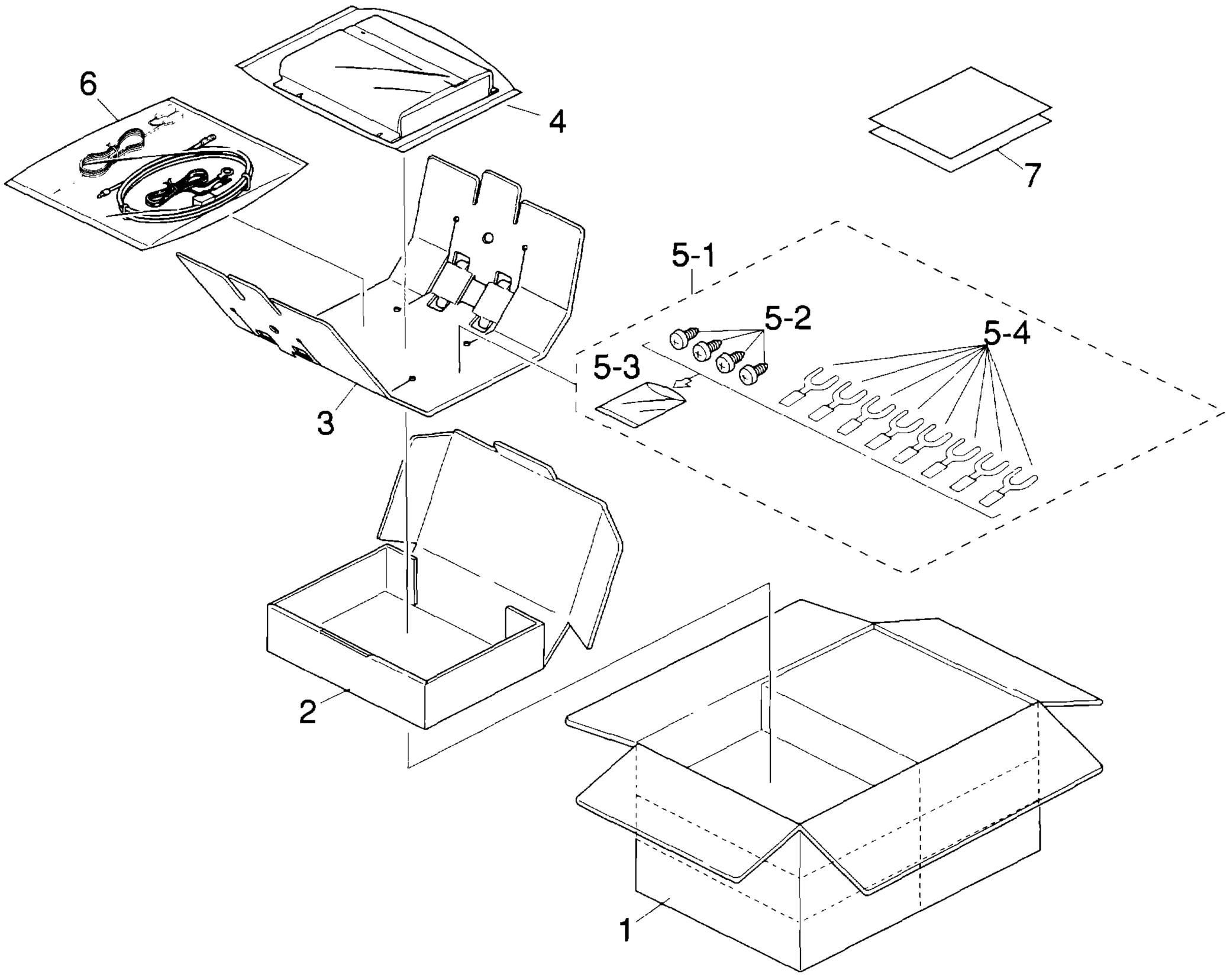


Fig. 1

NOTE:

- Parts marked by " * "are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▼ mark on the product are used for disassembly.

(1) PARTS LIST

Mark	No.	Description	Part No.
	1	Contain Box	See Contrast table (2)
	2	Carton	See Contrast table (2)
	3	Protector	HHP0001
	4	Polyethylene Bag	HEG0009
	5-1	Screw Assy	See Contrast table (2)
	5-2	Screw(x4)	BYC40P180FZK
	5-3	Polyethylene Bag	HEG0011
	5-4	Terminal(x8)	See Contrast table (2)
	6	Cord Assy	See Contrast table (2)
	7-1	Owner's Manual	See Contrast table (2)
*	7-2	Warranty Card	See Contrast table (2)
*	7-3	Caution Card	HRP0001
*	7-4	Caution Card	See Contrast table (2)

(2) CONTRAST TABLE

GM-X414/X1H/UC and GM-X414/X1H/ES have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.	
			GM-X414/X1H/UC	GM-X414/X1H/ES
	1	Contain Box	HHL0074	HHL0077
	2	Carton	HHG0074	HHG0077
	5-1	Screw Assy	HEA0008	HEA0010
	5-2	Terminal(x8)	HKC0001	HKC0003
	6	Cord Assy	Not used	HDE4419
	7-1	Owner's Manual	HRD0029	HRD0031
*	7-2	Warranty Card	HRY1070	Not used
*	7-4	Caution Card	HRD0006	Not used

● Owner's Manual

Part No.	Model	Language
HRD0029	GM-X414/X1H/UC	English, French
HRD0031	GM-X414/X1H/ES	English, Spanish, Arabic, Portuguese(B)

2.2 EXTERIOR

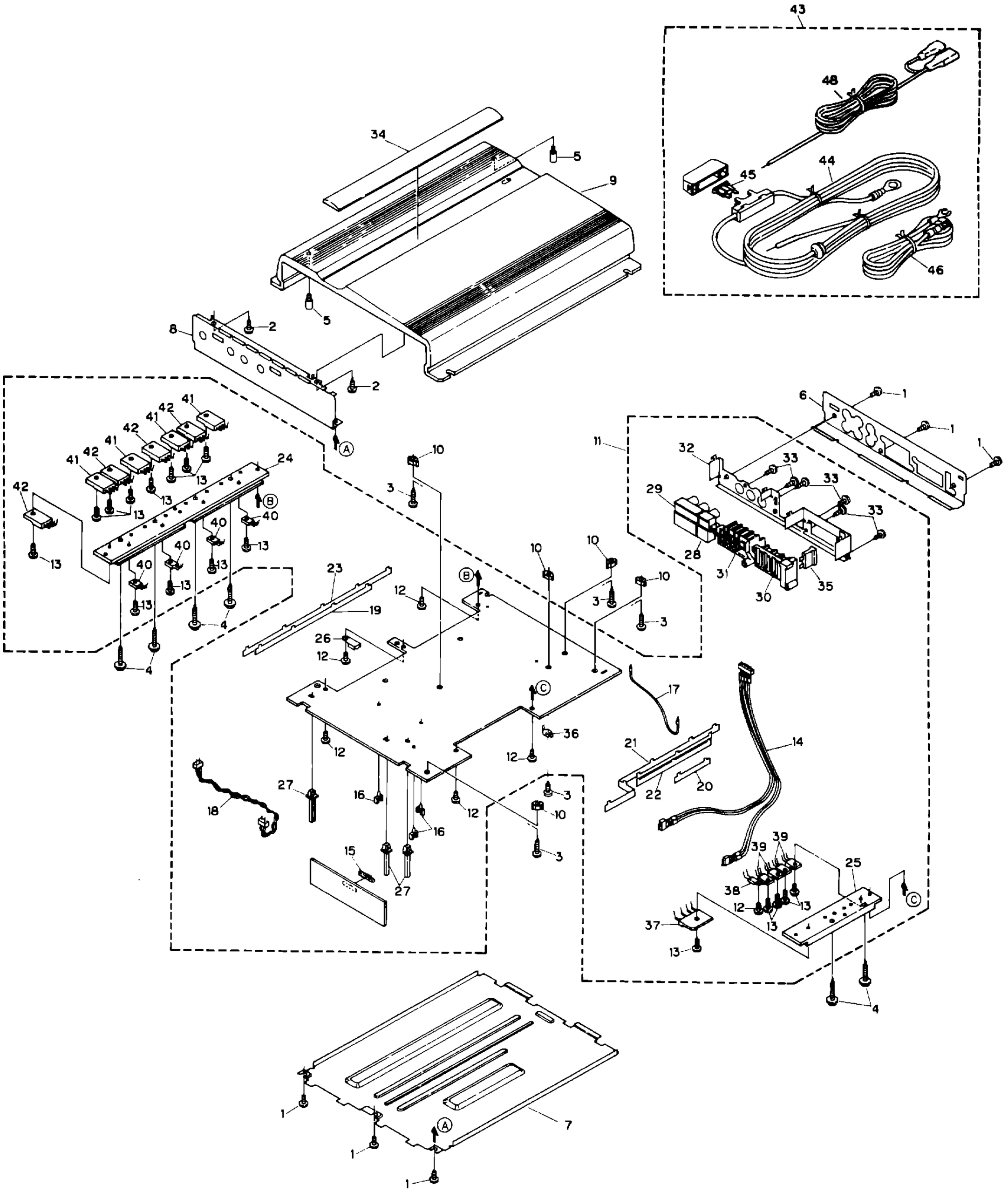


Fig. 2

(1) PARTS LIST

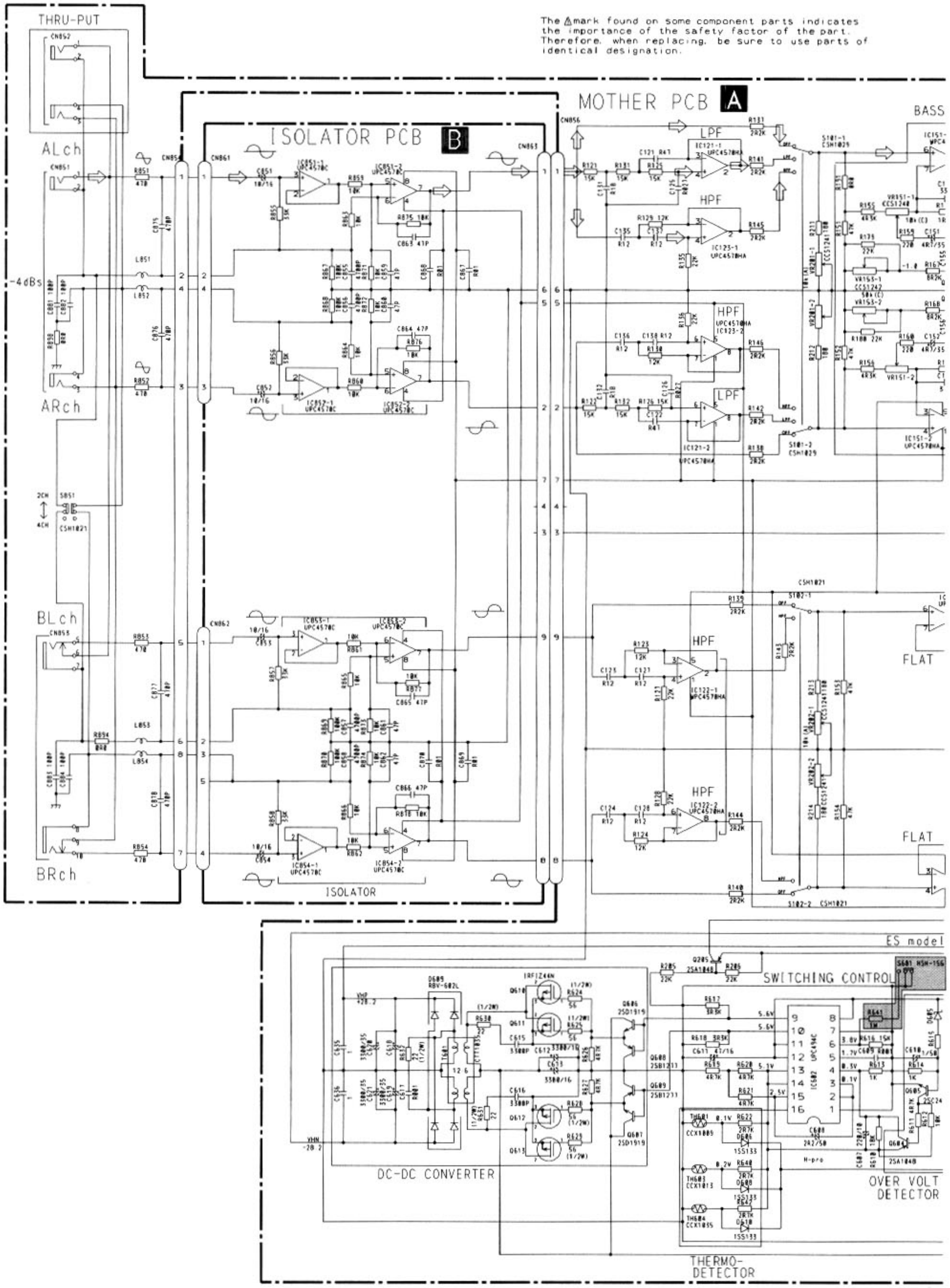
Mark	No.	Description	Part No.
	1	Screw	BSZ30P050FZK
	2	Screw(M3x6)	CBA1320
	3	Screw(M3x12)	CBA1323
	4	Screw	CBA1382
	5	Screw	HBA0006
	6	Panel	HNB0009
	7	Case	HNB0015
	8	Panel	HNB0017
	9	Heat Sink	See Contrast table (2)
	10	Spacer	HNV3975
	11	Amp Unit	See Contrast table (2)
	12	Screw	BMS30P060FZK
	13	Screw	BMS30P080FMC
	14	Connector(CN854)	HDE5212
	15	Plug(CN863)	CKS1618
	16	Clamper	CNV1335
	17	Cord(CN901)	HDC1030
	18	Cord	HDE4610
	19	Bass Bar	HNC0014
	20	Holder	HNC5538
	21	Holder	HNC5540
	22	Holder	HNC5541
	23	Holder	HNC5841
	24	Heat Sink(Sub Heat Sink)	HNR0050
	25	Heat Sink(Sub Heat Sink)	HNR0052
	26	Clamper	HNV0003
	27	Holder	HNV0005
	28	Pin Jack(CN852)	See Contrast table (2)
	29	Pin Jack(CN851)	See Contrast table (2)
	30	Terminal(CN601)	See Contrast table (2)
	31	Terminal(CN303)	See Contrast table (2)
	32	Holder	HNC0006
	33	Screw	PPZ30P060FZK
	34	Plate Unit	See Contrast table (2)
	35	Fuse(FU999)(25A)	HEK0025
	36	Holder	CNC5399
	37	Diode(D609)	RBV-602L
	38	Thermistor(TH603)	CCX1013
	39	FET(Q610-613)	IRFIZ44N
	40	Transistor(Q313-316)	2SD2343
	41	Transistor(Q329-332)	2SB1587
	42	Transistor(Q325-328)	2SD2438
	43	Cord Assy	See Contrast table (2)
	44	Cord Assy	See Contrast table (2)
	45	Fuse(30A)	See Contrast table (2)
	46	Cord	See Contrast table (2)
	47	·····	
	48	Cord Assy	See Contrast table (2)

(2) CONTRAST TABLE

GM-X414/X1H/UC and GM-X414/X1H/ES have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.	
			GM-X414/X1H/UC	GM-X414/X1H/ES
	9	Heat Sink	HNR0046	HNR0048
	11	Amp Unit	HWH0006	HWH0005
	28	Pin Jack(CN852)	CKB1013	CKB1011
	29	Pin Jack(CN851)	CKB1022	CKB1021
	30	Terminal(CN601)	HKE0002	HKE0001
	31	Terminal(CN303)	HKE0006	HKE0005
	34	Plate Unit	HXA0031	HXA0064
	43	Cord Assy	Not used	HDE4419
	44	Cord Assy	Not used	HDE4423
	45	Fuse(30A)	Not used	HEK0030
	46	Cord	Not used	HDE4455
	48	Cord Assy	Not used	HDE0007

3. SCHEMATIC DIAGRAM

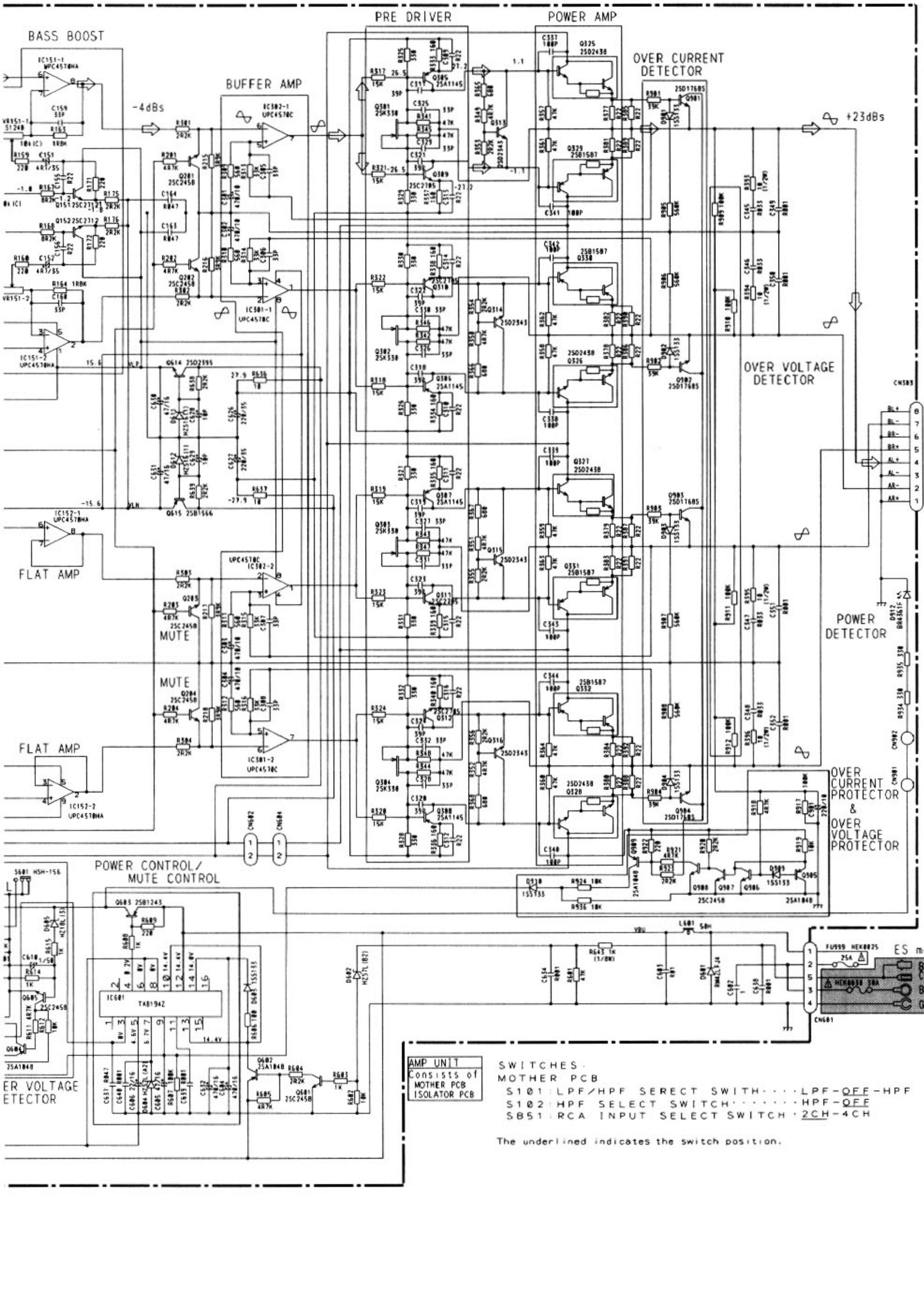


NOTE

-▭- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

-|(- Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as.
2.2→2R2
0.022→R022

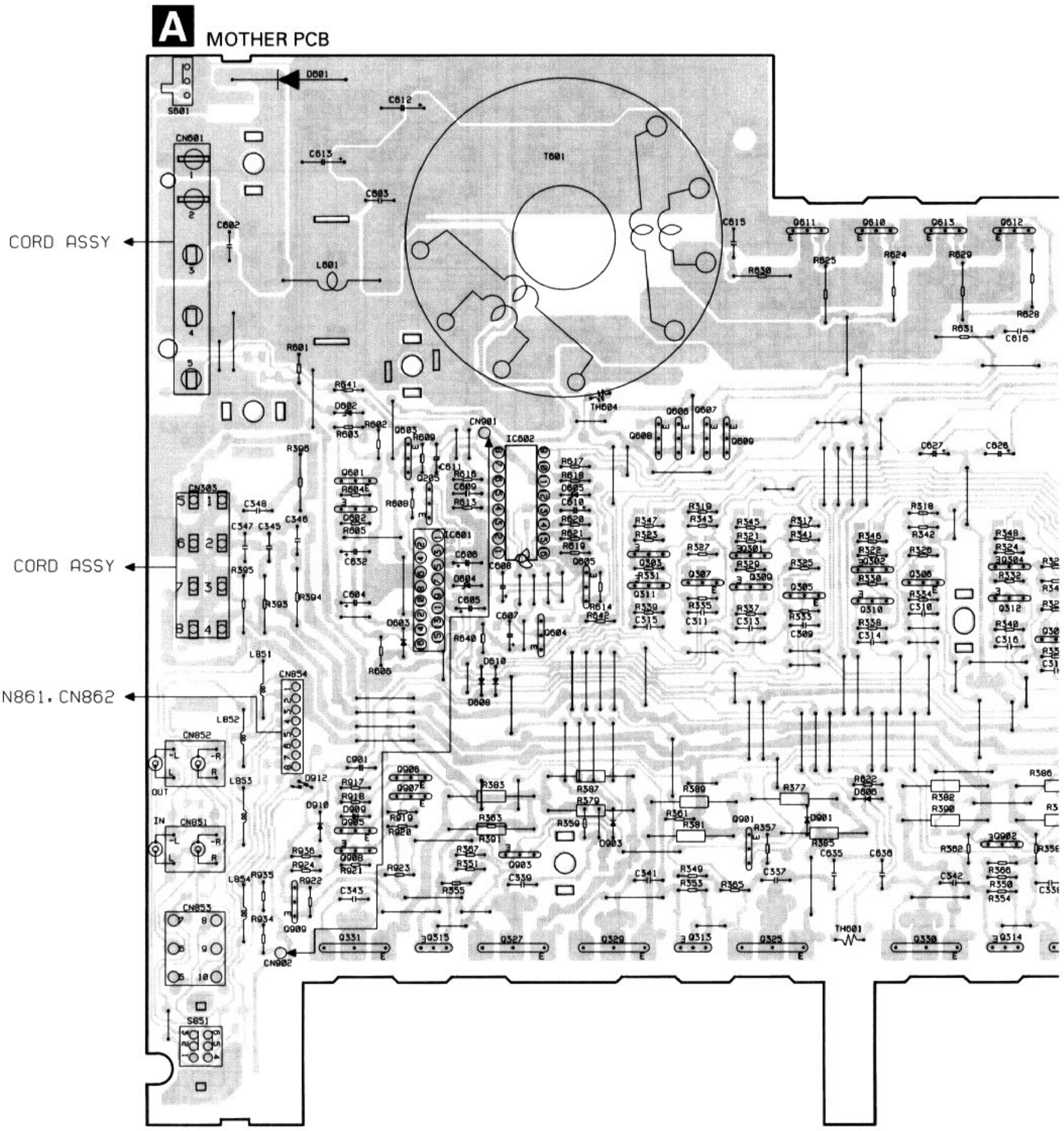


SWITCHES.
MOTHER PCB
S101 : LPF/HPF SERECT SWITH . . . LPF-OFF-HPF
S102 : HPF SELECT SWITCH . . . . . HPF-OFF
S851 : RCA INPUT SELECT SWITCH . 2CH-4CH

The underlined indicates the switch position.

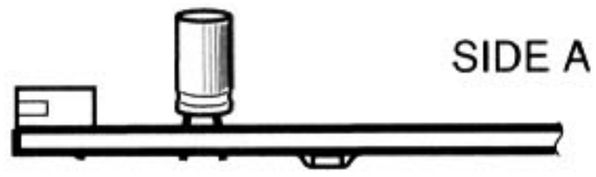
Fig. 3

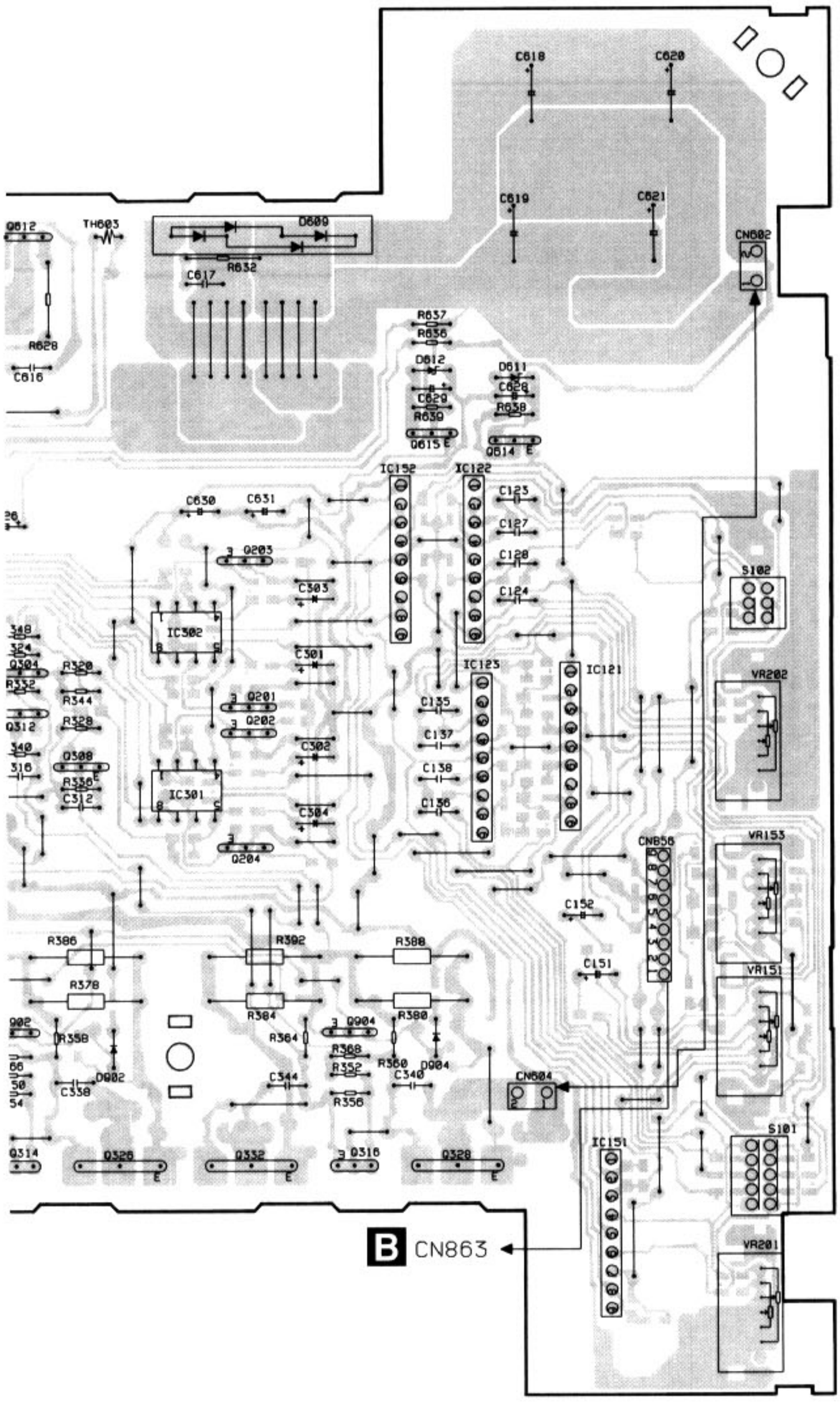
4. PCB CONNECTION DIAGRAM



NOTE:

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

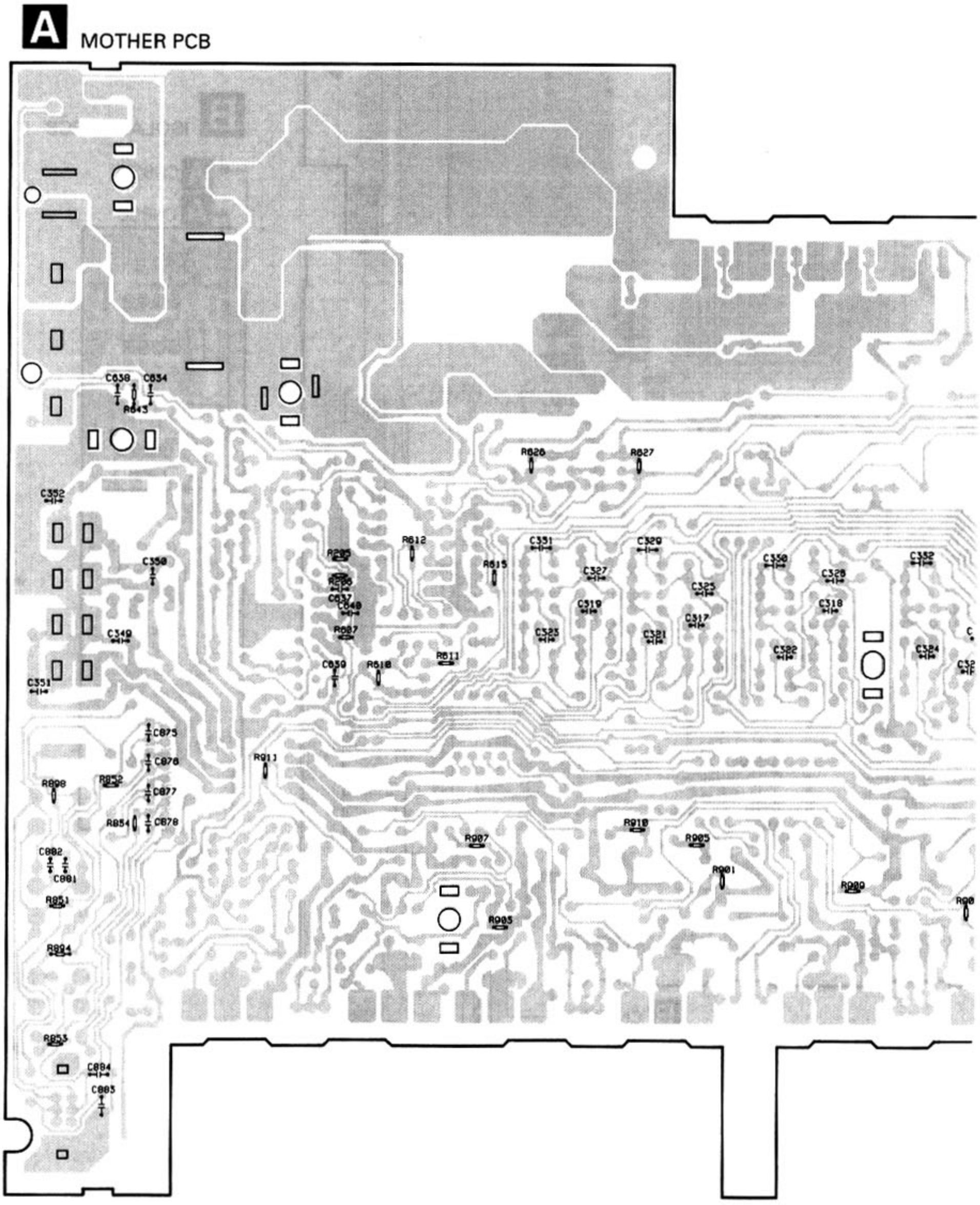




	ADJ	IC. Q
		Q611 Q610 Q613 Q612
		Q615 Q614
		IC853
		IC152 IC122 Q608 Q606 Q607 Q609
		Q603
		Q601 Q203
		Q602 Q205
		IC302 IC854
		IC602 Q305 IC601 Q301 IC123 IC121 Q605 Q307 Q302 Q306 Q304 Q311 Q309 Q305
VR202		Q312 Q201 Q310 Q202 IC851 Q308 Q604 IC301
		Q204
VR153		
		Q906 IC852 Q907
VR151		Q905 Q901 Q908 Q902 Q904 Q903
		Q909 IC151 Q330 Q326 Q332 Q328 Q331 Q327 Q329 Q325 Q315 Q313 Q314 Q316
VR201		

Fig. 4

A MOTHER PCB


C638
C634
R643
C352
C350
C349
C351
R612
R615
C351
C320
C327
C325
C319
C317
C350
C328
C318
C352
C322
C324
C321
C325
R611
R618
C650
C875
C876
C877
C878
R911
R898
R852
R854
C882
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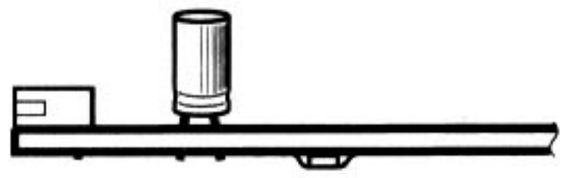
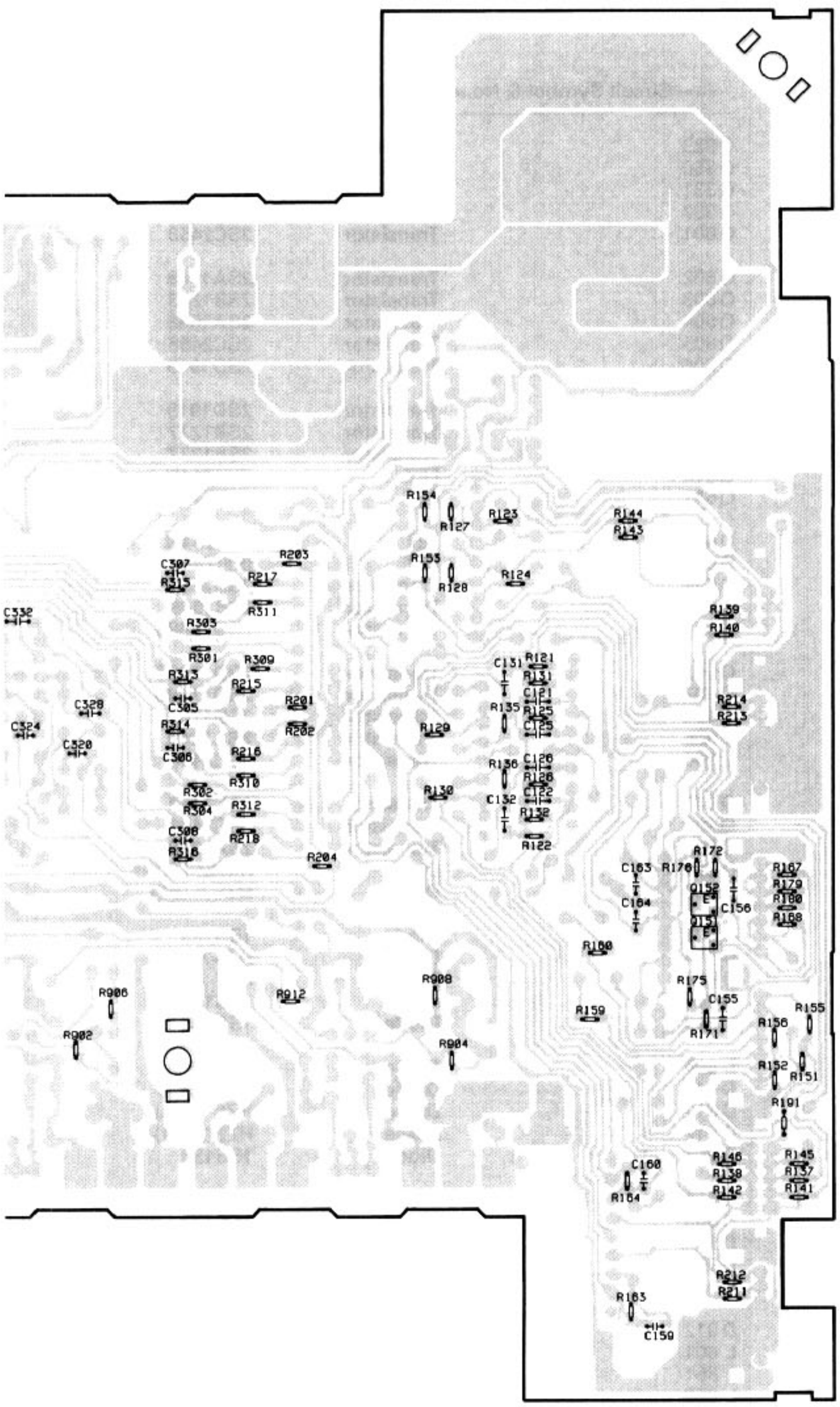
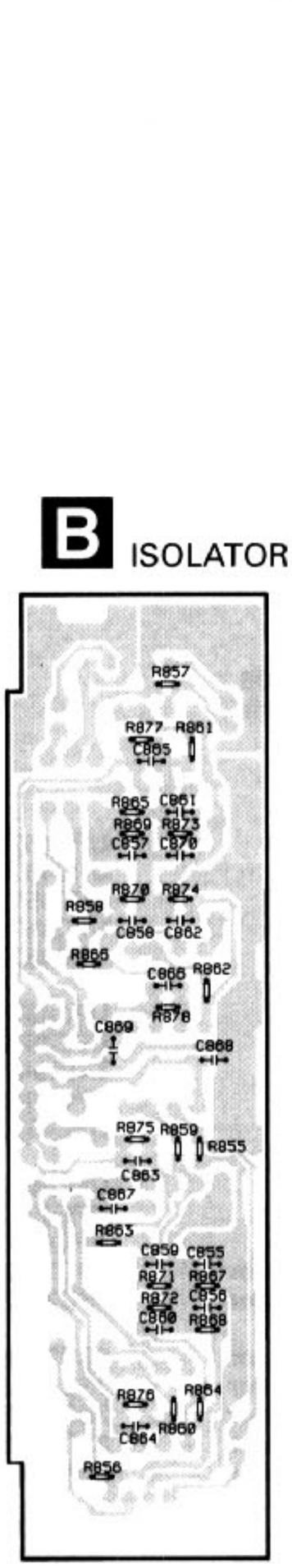
R900
R903
R628
R627



SIDE B



B ISOLATOR PCB



Q152

Q151

Fig. 5

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

  Chip Resistor

  RS1/○S○○○J,RS1/○○S○○○J

  Chip Capacitor (except for CQS.....)

  CKS....., CCS....., CSZS.....

GM-X414/X1H/UC

AMP UNIT
Consists of
MOTHER PCB
ISOLATOR PCB

A B Unit Number : HWH0006
Unit Name : Amp Unit

MISCELLANEOUS

=====Circuit Symbol & No.===	Part Name	Part No.
IC121	IC	UPC4570HA
IC122	IC	UPC4570HA
IC123	IC	UPC4570HA
IC151	IC	UPC4570HA
IC152	IC	UPC4570HA
IC301	IC	UPC4570C
IC302	IC	UPC4570C
IC601	IC	TA8194Z
IC602	IC	UPC494C
IC851	IC	UPC4570C
IC852	IC	UPC4570C
IC853	IC	UPC4570C
IC854	IC	UPC4570C
Q151	Transistor	2SC2712
Q152	Transistor	2SC2712
Q201	Transistor	2SC2458
Q202	Transistor	2SC2458
Q203	Transistor	2SC2458
Q204	Transistor	2SC2458
Q205	Transistor	2SA1048
Q301	Transistor	2SK330
Q302	Transistor	2SK330
Q303	Transistor	2SK330
Q304	Transistor	2SK330
Q305	Transistor	2SA1145
Q306	Transistor	2SA1145
Q307	Transistor	2SA1145
Q308	Transistor	2SA1145
Q309	Transistor	2SC2705
Q310	Transistor	2SC2705
Q311	Transistor	2SC2705
Q312	Transistor	2SC2705
Q313	Transistor	2SD2343
Q314	Transistor	2SD2343
Q315	Transistor	2SD2343
Q316	Transistor	2SD2343
Q325	Transistor	2SD2438
Q326	Transistor	2SD2438
Q327	Transistor	2SD2438
Q328	Transistor	2SD2438
Q329	Transistor	2SB1587
Q330	Transistor	2SB1587
Q331	Transistor	2SB1587
Q332	Transistor	2SB1587
Q601	Transistor	2SC2458
Q602	Transistor	2SA1048
Q603	Transistor	2SB1243
Q604	Transistor	2SA1048
Q605	Transistor	2SC2458
Q606	Transistor	2SD1919
Q607	Transistor	2SD1919
Q608	Transistor	2SB1277
Q609	Transistor	2SB1277
Q610	FET	IRFIZ44N
Q611	FET	IRFIZ44N
Q612	FET	IRFIZ44N
Q613	FET	IRFIZ44N
Q614	Transistor	2SD2395
Q615	Transistor	2SB1566
Q901	Transistor	2SD1768S
Q902	Transistor	2SD1768S
Q903	Transistor	2SD1768S
Q904	Transistor	2SD1768S
Q905	Transistor	2SA1048
Q906	Transistor	2SC2458
Q907	Transistor	2SC2458
Q908	Transistor	2SC2458
Q909	Transistor	2SA1048
D601	Diode	RM4Z-LFJ4
D602	Diode	HZS7L(B2)
D603	Diode	1SS133
D604	Diode	HZS7L(A2)
D605	Diode	HZS18L(3)
D606	Diode	1SS133
D608	Diode	1SS133
D609	Diode	RBV-602L
D610	Diode	1SS133
D611	Diode	HZS16L(1)
D612	Diode	HZS16L(1)
D901	Diode	1SS133
D902	Diode	1SS133
D903	Diode	1SS133
D904	Diode	1SS133
D909	Diode	1SS133
D910	Diode	1SS133
D912	LED	BR4361F
L601	Choke Coil 50H	CTH1142
L851	Ferri-Inductor	CTF1007
L852	Ferri-Inductor	CTF1007
L853	Ferri-Inductor	CTF1007
L854	Ferri-Inductor	CTF1007
T601	Transformer	HTT1035
TH601	Thermistor	CCX1009
TH603	Thermistor	CCX1013
TH604	Thermistor	CCX1035

Circuit Symbol & No.	Part Name	Part No.
S 101	Switch	CSH1029
S 102	Switch	CSH1021
S 851	Switch	CSH1021
VR151	Volume 10KΩ(C)	CCS1240
VR153	Volume 50KΩ(C)	CCS1242
VR201	Volume 10KΩ(A)	CCS1241
VR202	Volume 10KΩ(A)	CCS1241
FU999	Fuse 25A	HEK0025

RESISTORS

R 121		RS1/10S153J
R 122		RS1/10S153J
R 123		RS1/10S123J
R 124		RS1/10S123J
R 125		RS1/10S153J
R 126		RS1/10S153J
R 127		RS1/10S223J
R 128		RS1/10S223J
R 129		RS1/10S123J
R 130		RS1/10S123J
R 131		RS1/10S153J
R 132		RS1/10S153J
R 135		RS1/10S223J
R 136		RS1/10S223J
R 137		RS1/10S222J
R 138		RS1/10S222J
R 139		RS1/10S222J
R 140		RS1/10S222J
R 141		RS1/10S222J
R 142		RS1/10S222J
R 143		RS1/10S222J
R 144		RS1/10S222J
R 145		RS1/10S222J
R 146		RS1/10S222J
R 151		RS1/10S473J
R 152		RS1/10S473J
R 153		RS1/10S473J
R 154		RS1/10S473J
R 155		RS1/10S432J
R 156		RS1/10S432J
R 159		RS1/10S221J
R 160		RS1/10S221J
R 163		RS1/10S182J
R 164		RS1/10S182J
R 167		RS1/10S822J
R 168		RS1/10S822J
R 171		RS1/10S221J
R 172		RS1/10S221J
R 175		RS1/10S222J
R 176		RS1/10S222J
R 191		RS1/8S0R0J
R 201		RS1/10S472J
R 202		RS1/10S472J
R 203		RS1/10S472J
R 204		RS1/10S472J
R 205		RS1/10S223J
R 206		RS1/10S223J
R 211		RS1/10S181J
R 212		RS1/10S181J
R 213		RS1/10S181J
R 214		RS1/10S181J
R 215		RS1/10S392J
R 216		RS1/10S392J
R 217		RS1/10S392J
R 218		RS1/10S392J
R 301		RS1/10S222J
R 302		RS1/10S222J
R 303		RS1/10S222J
R 304		RS1/10S222J
R 309		RS1/10S561J
R 310		RS1/10S561J
R 311		RS1/10S561J
R 312		RS1/10S561J
R 313		RS1/10S333J
R 314		RS1/10S333J
R 315		RS1/10S333J
R 316		RS1/10S333J
R 317		RD1/4PU153J
R 318		RD1/4PU153J
R 319		RD1/4PU153J
R 320		RD1/4PU153J
R 321		RD1/4PU153J
R 322		RD1/4PU153J
R 323		RD1/4PU153J
R 324		RD1/4PU153J
R 325		RD1/4PU331J
R 326		RD1/4PU331J
R 327		RD1/4PU331J
R 328		RD1/4PU331J
R 329		RD1/4PU331J
R 330		RD1/4PU331J
R 331		RD1/4PU331J
R 332		RD1/4PU331J
R 333		RD1/4PU161J
R 334		RD1/4PU161J
R 335		RD1/4PU161J
R 336		RD1/4PU161J
R 337		RD1/4PU161J
R 338		RD1/4PU161J
R 339		RD1/4PU161J
R 340		RD1/4PU161J
R 341		RD1/4PU473J
R 342		RD1/4PU473J
R 343		RD1/4PU473J
R 344		RD1/4PU473J
R 345		RD1/4PU473J
R 346		RD1/4PU473J
R 347		RD1/4PU473J
R 348		RD1/4PU473J
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R 359		RD1/4PU473J
R 360		RD1/4PU473J
R 361		RD1/4PU473J
R 362		RD1/4PU473J
R 363		RD1/4PU473J
R 364		RD1/4PU473J
R 365		RD1/4PU681J
R 366		RD1/4PU681J
R 367		RD1/4PU681J
R 368		RD1/4PU681J
R 377	0.22Ω	CCN1013

=====Circuit Symbol & No.	===Part Name	Part No.
R 378	0.22Ω	CCN1013
R 379	0.22Ω	CCN1013
R 380	0.22Ω	CCN1013
R 381	0.22Ω	CCN1013
R 382	0.22Ω	CCN1013
R 383	0.22Ω	CCN1013
R 384	0.22Ω	CCN1013
R 385	0.22Ω	CCN1013
R 386	0.22Ω	CCN1013
R 387	0.22Ω	CCN1013
R 388	0.22Ω	CCN1013
R 389	0.22Ω	CCN1013
R 390	0.22Ω	CCN1013
R 391	0.22Ω	CCN1013
R 392	0.22Ω	CCN1013
R 393		RS1/2PMF100J
R 394		RS1/2PMF100J
R 395		RS1/2PMF100J
R 396		RS1/2PMF100J
R 601		RD1/4PU473J
R 602		RD1/4PU103J
R 603		RD1/4PU103J
R 604		RD1/4PU222J
R 605		RD1/4PU472J
R 606		RD1/4PU101J
R 607		RS1/10S104J
R 608		RD1/4PU102J
R 609		RD1/4PU221J
R 610		RS1/10S183J
R 611		RS1/10S472J
R 612		RS1/10S103J
R 613		RD1/4PU102J
R 614		RD1/4PU102J
R 615		RS1/10S102J
R 616		RD1/4PU153J
R 617		RD1/4PU332J
R 618		RD1/4PU332J
R 619		RD1/4PU472J
R 620		RD1/4PU472J
R 621		RD1/4PU472J
R 622		RD1/4PU272J
R 624		RS1/2PMF560J
R 625		RS1/2PMF560J
R 626		RS1/10S472J
R 627		RS1/10S472J
R 628		RS1/2PMF560J
R 629		RS1/2PMF560J
R 630		RS1/2PMF220J
R 631		RS1/2PMF220J
R 632		RS1/2PMF220J
R 636		RD1/4PU100J
R 637		RD1/4PU100J
R 638		RD1/4PU222J
R 639		RD1/4PU222J
R 640		RD1/4PU272J
R 642		RD1/4PU272J
R 643		RS1/8S102J
R 851		RS1/10S471J
R 852		RS1/10S471J
R 853		RS1/10S471J
R 854		RS1/10S471J
R 855		RS1/10S333J
R 856		RS1/10S333J
R 857		RS1/10S333J
R 858		RS1/10S333J

=====Circuit Symbol & No.	===Part Name	Part No.
R 859		RN1/10SE1002D
R 860		RN1/10SE1002D
R 861		RN1/10SE1002D
R 862		RN1/10SE1002D
R 863		RN1/10SE1002D
R 864		RN1/10SE1002D
R 865		RN1/10SE1002D
R 866		RN1/10SE1002D
R 867		RS1/10S104J
R 868		RS1/10S104J
R 869		RS1/10S104J
R 870		RN1/10SE1002D
R 871		RN1/10SE1002D
R 872		RN1/10SE1002D
R 873		
R 874		RN1/10SE1002D
R 875		RN1/10SE1002D
R 876		RN1/10SE1002D
R 877		RN1/10SE1002D
R 878		RN1/10SE1002D
R 894		RS1/8S0R0J
R 898		RS1/10S0R0J
R 901		RS1/10S393J
R 902		RS1/10S393J
R 903		RS1/10S393J
R 904		RS1/10S393J
R 905		RS1/10S564J
R 906		RS1/10S564J
R 907		RS1/10S564J
R 908		RS1/10S564J
R 909		RS1/10S104J
R 910		RS1/10S104J
R 911		RS1/10S104J
R 912		RS1/10S104J
R 917		RD1/4PU104J
R 918		RD1/4PU472J
R 919		RD1/4PU103J
R 920		RD1/4PU222J
R 921		RD1/4PU472J
R 922		RD1/4PU221J
R 923		RD1/4PU222J
R 924		RD1/4PU103J
R 934		RD1/4PU331J
R 935		RD1/4PU331J
R 936		RD1/4PU103J
CAPACITORS		
C 121		CKSYB474K16
C 122		CKSYB474K16
C 123		CFTNA124J50
C 124		CFTNA124J50
C 125		CKSYB273K25
C 126		CKSYB273K25
C 127		CFTNA124J50
C 128		CFTNA124J50
C 131		CKSYB184K16
C 132		CKSYB184K16
C 135		CFTNA124J50
C 136		CFTNA124J50
C 137		CFTNA124J50
C 138		CFTNA124J50
C 151		CEAS4R7M35
C 152		CEAS4R7M35
C 155		CKSYB224K16
C 156		CKSYB224K16
C 159		CCSQCH330J50
C 160		CCSQCH330J50

=====Circuit Symbol & No.	===Part Name	Part No.
C 163		CKSQYB473K25
C 164		CKSQYB473K25
C 301		CEAS471M10
C 302		CEAS471M10
C 303		CEAS471M10
C 304		CEAS471M10
C 305		CCSQCH330J50
C 306		CCSQCH330J50
C 307		CCSQCH330J50
C 308		CCSQCH330J50
C 309		CFTNA224J50
C 310		CFTNA224J50
C 311		CFTNA224J50
C 312		CFTNA224J50
C 313		CFTNA224J50
C 314		CFTNA224J50
C 315		CFTNA224J50
C 316		CFTNA224J50
C 317		CCSQCH390J50
C 318		CCSQCH390J50
C 319		CCSQCH390J50
C 320		CCSQCH390J50
C 321		CCSQCH390J50
C 322		CCSQCH390J50
C 323		CCSQCH390J50
C 324		CCSQCH390J50
C 325		CCSQCH330J50
C 326		CCSQCH330J50
C 327		CCSQCH330J50
C 328		CCSQCH330J50
C 329		CCSCH330J50
C 330		CCSCH330J50
C 331		CCSCH330J50
C 332		CCSCH330J50
C 337		CCCSL101J50
C 338		CCCSL101J50
C 339		CCCSL101J50
C 340		CCCSL101J50
C 341		CCCSL101J50
C 342		CCCSL101J50
C 343		CCCSL101J50
C 344		CCCSL101J50
C 345		CFTNA333J50
C 346		CFTNA333J50
C 347		CFTNA333J50
C 348		CFTNA333J50
C 349		CKSQYB102K50
C 350		CKSQYB102K50
C 351		CKSQYB102K50
C 352		CKSQYB102K50
C 602		CFTNA105J50
C 603		CFTNA103J50
C 604	470µF/16V	CCH1183
C 605		CEAS470M16
C 606		CEAS220M16
C 607		CEAS221M10
C 608		CEAS2R2M50
C 609		CQMA102J50
C 610		CEAS1R0M50
C 611		CEAS470M16

=====Circuit Symbol & No.	===Part Name	Part No.
C 612	3300µF/16V	CCH1130
C 613	3300µF/16V	CCH1130
C 615		CQMA332J50
C 616		CQMA332J50
C 617		CQMA102J50
C 618	3300µF/35V	CCH1200
C 619	3300µF/35V	CCH1200
C 620	3300µF/35V	CCH1200
C 621	3300µF/35V	CCH1200
C 626		CEAS221M35
C 627		CEAS221M35
C 628		CEAS100M50
C 629		CEAS100M50
C 630		CEAS470M16
C 631		CEAS470M16
C 632	470µF/16V	CCH1183
C 634		CKSYB102K50
C 635		CFTNA105J50
C 636		CFTNA105J50
C 637		CKSQYB473K16
C 638		CKSYB102K50
C 639		CKSQYB102K50
C 640		CKSQYB102K50
C 851		CEAL100M16
C 852		CEAL100M16
C 853		CEAL100M16
C 854		CEAL100M16
C 855		CKSQYB472K50
C 856		CKSQYB472K50
C 857		CKSQYB472K50
C 858		CKSQYB472K50
C 859		CCSQCH470J50
C 860		CCSQCH470J50
C 861		CCSQCH470J50
C 862		CCSQCH470J50
C 863		CCSQCH470J50
C 864		CCSQCH470J50
C 865		CCSQCH470J50
C 866		CCSQCH470J50
C 867		CKSQYB103K50
C 868		CKSQYB103K50
C 869		CKSQYB103K50
C 870		CKSQYB103K50
C 875		CKSQYB471K50
C 876		CKSQYB471K50
C 877		CKSQYB471K50
C 878		CKSQYB471K50
C 881		CCSSL101J50
C 882		CCSSL101J50
C 883		CCSSL101J50
C 884		CCSSL101J50
C 901	220µF/10V	CCH1036

GM-X414/X1H/UC and GM-X414/X1H/ES have the same construction except for the following:

● Amp Unit

Circuit Symbol & No.	GM-X414/X1H/UC Part No.	GM-X414/X1H/ES Part No.
S601	Not used	HSH-156
R641	Not used	RD1/4PU105J

6. ADJUSTMENT

There is no information to be shown in this chapter.

7. GENERAL INFORMATION

7.1 DISASSEMBLY

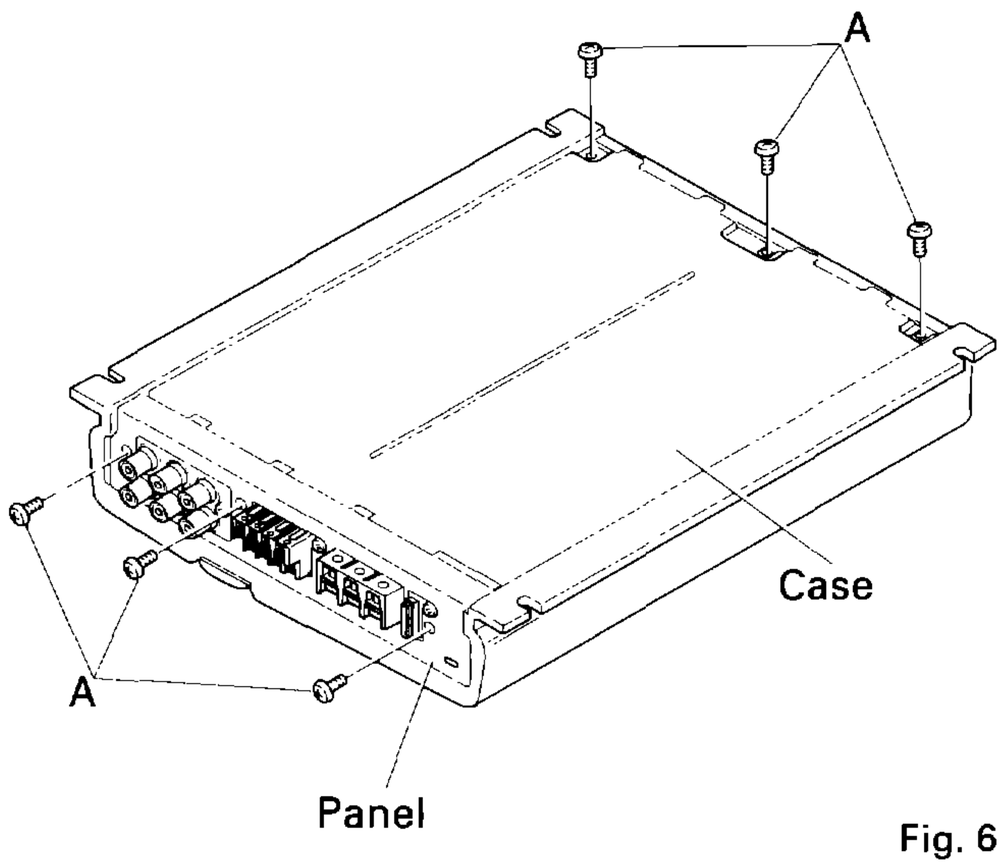

Fig. 6

● Removing the Case and Panel

1. Remove six screws A,and then remove case.
2. Remove panel.

● Removing the Amp Unit

Some silicone glue has been applied between the Heat Sink and the Sub Heat Sink. therefore, to remove the Amp Unit from the Heat Sink.

1. Remove two screws D.
2. Remove Panel.
3. Remove six screws B and five screws C.
4. Use 2 pcs. of screw B and insert them into the two holes marked with an arrow.
5. Alternately tighten them little by little until the Sub Heat Sink separates from the Heat Sink.

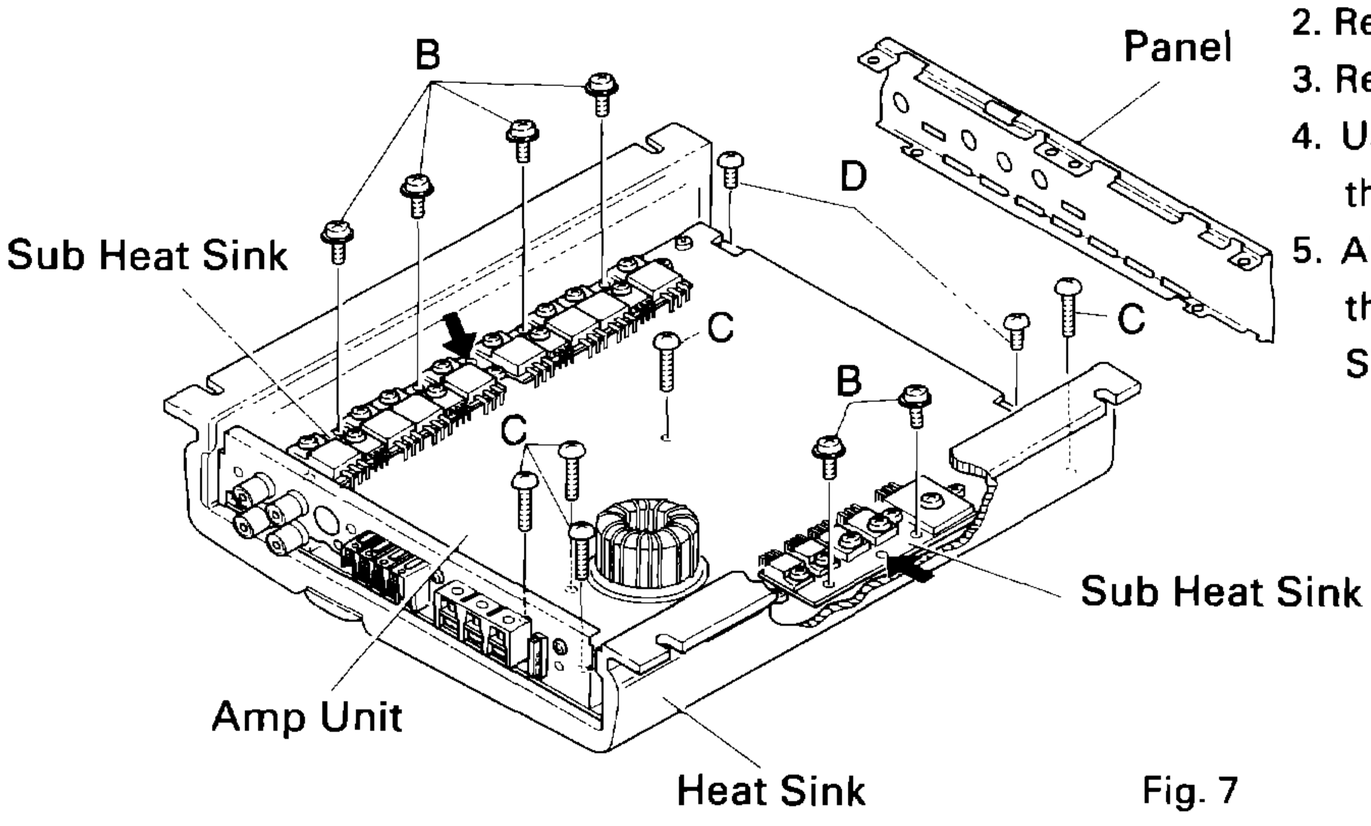

Fig. 7

8. OPERATIONS AND SPECIFICATIONS

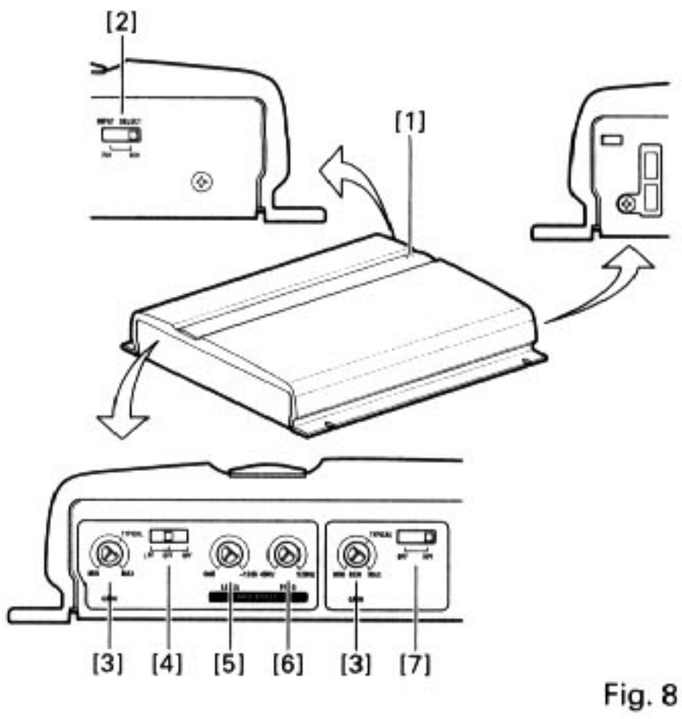

Fig. 8

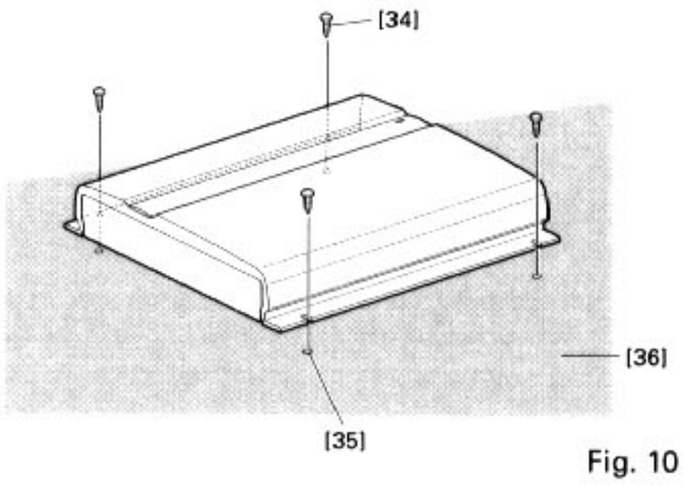

Fig. 10

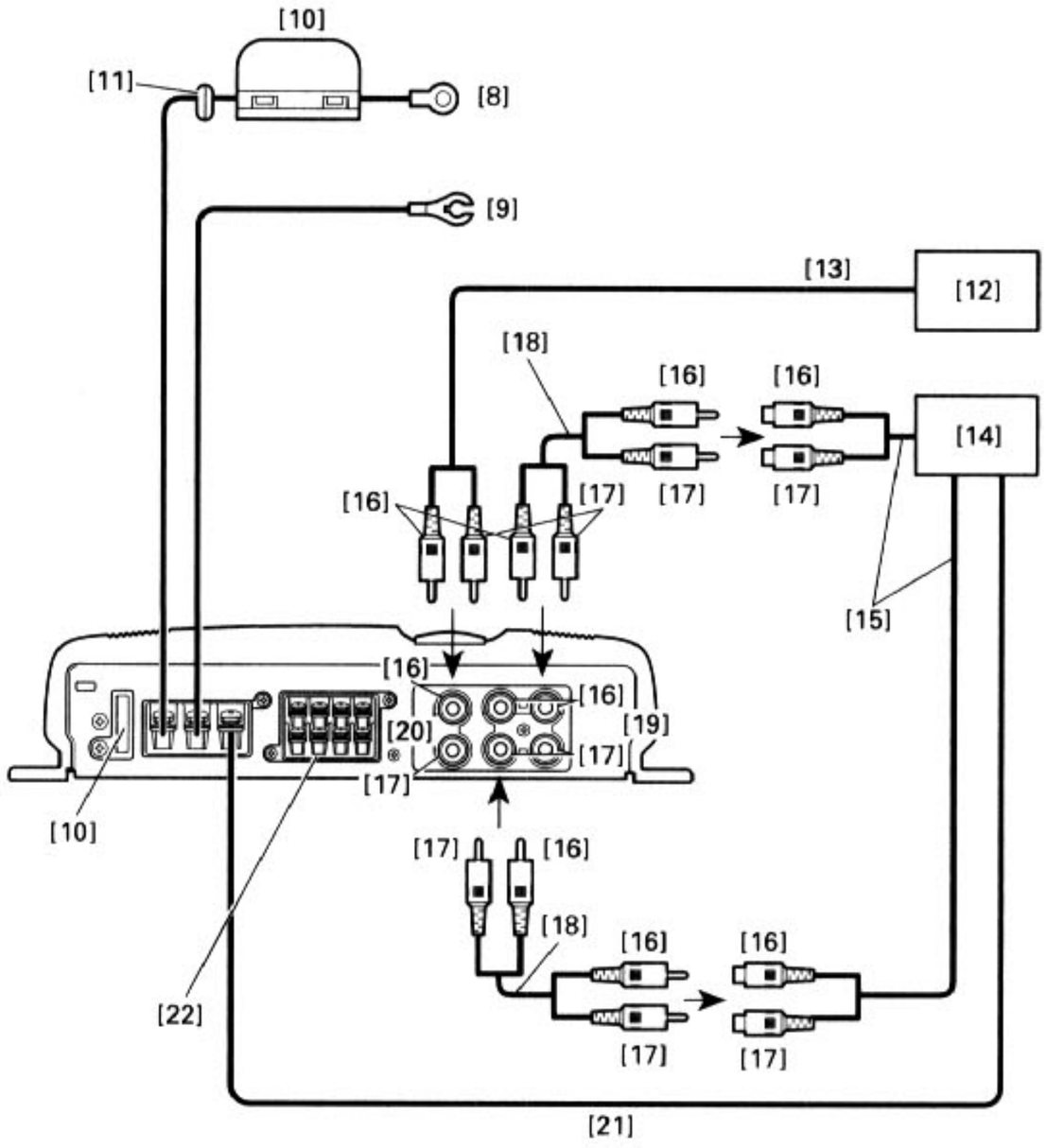

Fig. 9

Setting the Unit

(Fig. 8)

[1] Power Indicator
The power indicator lights when the power is switched on.

[2] RCA Input Select Switch
For two-channel input, slide this switch to the left. For four-channel input, slide this switch to the right.

[3] Input Level Adjustment
Adjusting the input level controls A and B will help match the output of the car stereo to the Pioneer amplifier. Input level control A is used to adjust the volume of speaker output A; Input level control B is used to adjust the volume of speaker output B. Normally, set the switch to the "TYPICAL" position. If the output is low even when the volume of the car stereo is turned up, turn these controls clockwise. If there is distortion when the volume of the car stereo is turned up, turn these controls counter clockwise.

- If you only use one input pin plug, set the input level controls for speaker outputs A and B to the same position.
- Set the input level control to "TYPICAL" when this amplifier is connected to a Pioneer car stereo with RCA output jacks. If the sound is too low or distorts, adjust the input level control.

[4] Speaker Out A: LPF (Low-Pass Filter)/HPF (High-Pass Filter) Select Switch
Set the LPF/HPF select switch as follows according to the type of the speaker that is connected to the speaker output connector and the car stereo system:

LPF/HPF Select Switch	Audio frequency range to be output	Speaker Type
LPF (left)	Very-low-frequency range	Sub-woofer
OFF (center)	Very-low-frequency range to high-frequency range	Other than sub-woofer
HPF (right) *	Low-frequency range to high-frequency range	Other than sub-woofer

* Set the LPF/HPF select switch to the HPF (right) position if you want to cut the very-low-frequency range because it is not necessary for the speaker you use.

[5] Speaker Out A: Bass Boost Level Control
Bass boost level control can boost the level around the frequency selected by the bass boost frequency control to 0 to 12 dB.

[6] Speaker Out A: Bass Boost Frequency Control
You can select a bass boost frequency from 40 to 120 Hz with the bass boost control.

- [5], [6] can be adjusted only when the LPF/HPF select switch is set to a position other than HPF.

[7] Speaker Out B: HPF (High-Pass Filter) Select Switch
Set the HPF select switch as follows according to the car stereo system and the type of speaker connected to the speaker output:

HPF Select Switch	Audio frequency range to be output	Speaker Type
OFF (left)	Very-low-frequency range to high-frequency range	Other than sub-woofer
HPF (right) *	Low-frequency range to high-frequency range	Other than sub-woofer

* Set the HPF select switch to the HPF (right) position if you want to cut the very-low-frequency range because it is not necessary for the speaker you use.

(Fig. 9)

[8] Special red battery wire [RD-222] (sold separately)
After making all other connections at the amplifier, connect the battery wire terminal of the amplifier to the positive (+) terminal of the battery.

[9] Ground wire (black) [RD-222] (sold separately)
Connect to metal body or chassis.

[10] Fuse (Special red battery wire: 30 A, Amplifier: 25 A)

[11] Grommet
[12] Amplifier with RCA input jacks
[13] RCA input
[14] Car stereo with RCA output jacks
[15] External Output
For details on how to connect to RCA input jacks A and B, see the "Connecting the Speakers and Input wires" section.
If only input pin plug, do not connect anything to RCA input jack B.
[16] White
[17] Red
[18] Connecting wires with RCA pin plugs (sold separately)
[19] RCA input jack A, B
[20] RCA output jack
[21] Blue
Connect the male terminal of this wire to the blue wire of the car stereo (system control terminal). The female terminal can be connected to the auto-antenna relay control terminal.
If the car stereo does not have a system remote control terminal, connect the male terminal to the power terminal through the ignition switch.
[22] Speaker output terminal
See the "Connecting the Speakers and Input wires" section for speaker connection instructions.

Connecting the Power Terminal

- *Always use the special red battery and ground wire [RD-222], which is sold separately. Connect the special red battery wire directly to the car battery positive terminal (+) and the black ground wire to the car body. (The special red battery and ground wire [RD-222] are designed so that the amplifier can be safely connected.)*

1. Pass the special red battery wire from the engine compartment to the interior of the vehicle.

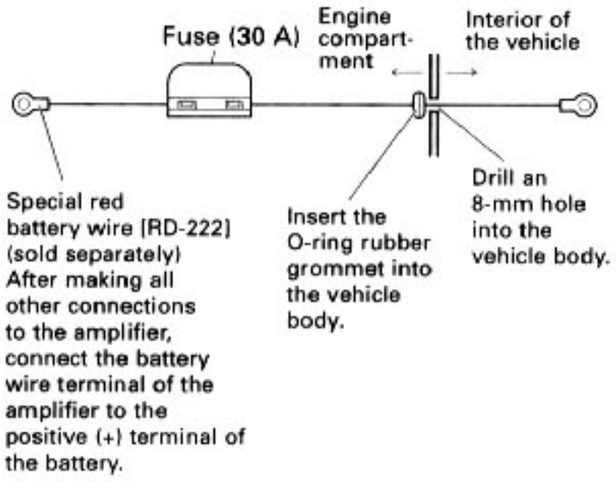
Fuse (30 A)
Engine compartment
Interior of the vehicle
Special red battery wire [RD-222] (sold separately) After making all other connections to the amplifier, connect the battery wire terminal of the amplifier to the positive (+) terminal of the battery.
Insert the O-ring rubber grommet into the vehicle body.
Drill an 8-mm hole into the vehicle body.

Fig. 11

2. Twist the system remote control wire.

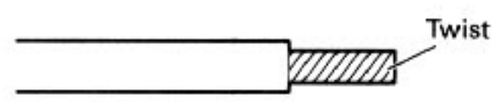

Fig. 12

3. Connect the wires to the terminal.

- Fix the wires securely with the terminal screws.
- If the supplied the System remote control wire are insufficient, please procure the System remote control wire that you require.

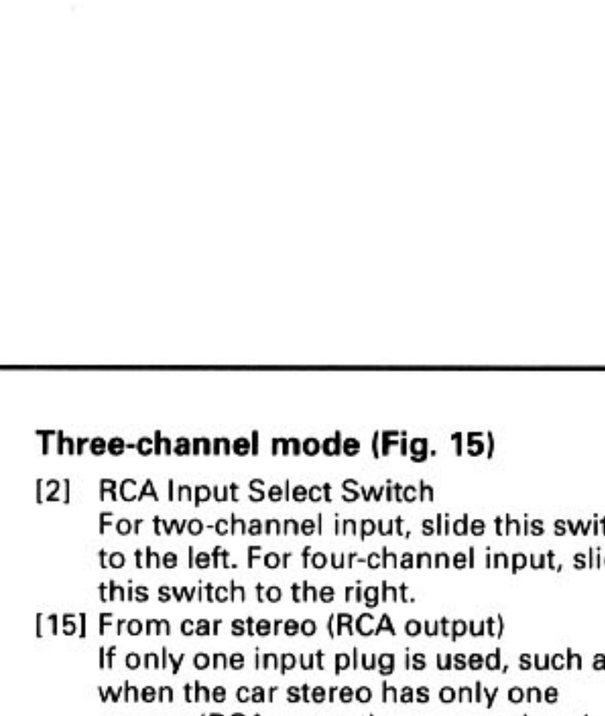

Fig. 13

Connecting the Speakers and Input wires

The speaker output mode can be four-channel, three-channel (stereo + mono) or two-channel (stereo, mono). Connect the speakers according to figures on the following pages.

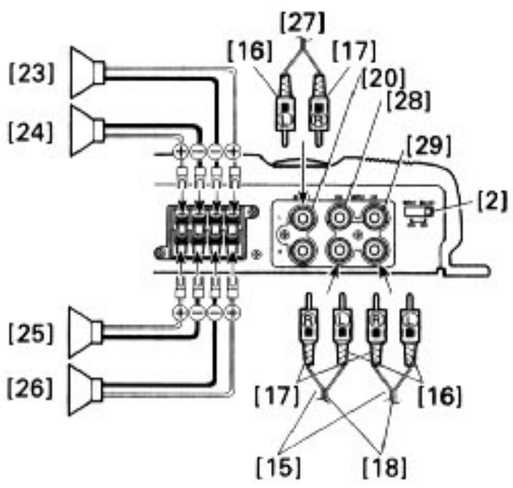

Fig. 14

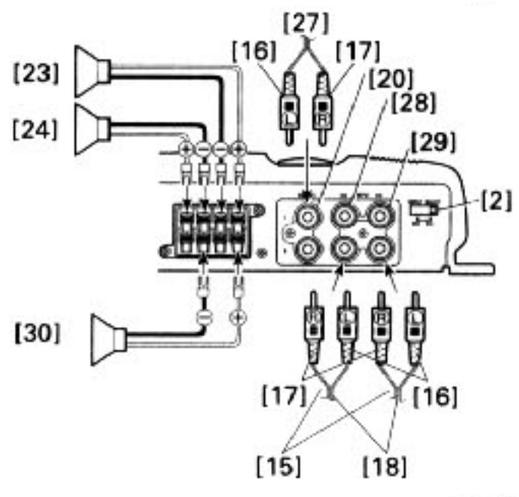

Fig. 15

Four-channel mode (Fig. 14)

[2] RCA Input Select Switch
For two-channel input, slide this switch to the left. For four-channel input, slide this switch to the right.
[15] From car stereo (RCA output)
If only one input plug is used, such as when the car stereo has only one output (RCA output), connect the plug to RCA input A, and do not connect any plug to RCA input B.
[16] White
[17] Red
[18] Connecting wires with RCA plugs (sold separately)
[20] RCA output jack
[23] Speaker out B: Speaker (left)
[24] Speaker out B: Speaker (right)
[25] Speaker out A: Speaker (right)
[26] Speaker out A: Speaker (left)
[27] To a separate amplifier (RCA input)
[28] RCA input jack A
[29] RCA input jack B
- Connect the front or rear output plugs to jacks [28] or [29], according to your system.

Three-channel mode (Fig. 15)

[2] RCA Input Select Switch
For two-channel input, slide this switch to the left. For four-channel input, slide this switch to the right.
[15] From car stereo (RCA output)
If only one input plug is used, such as when the car stereo has only one output (RCA output), connect the plug to RCA input A, and do not connect any plug to RCA input B.
[16] White
[17] Red
[18] Connecting wires with RCA plugs (sold separately)
[20] RCA output jack
[23] Speaker out B: Speaker (left)
[24] Speaker out B: Speaker (right)
[27] To a separate amplifier (RCA input)
[28] RCA input jack A
[29] RCA input jack B
- Connect the front or rear output plugs to jacks [28] or [29], according to your system.
[30] Speaker out A: Speaker (mono)

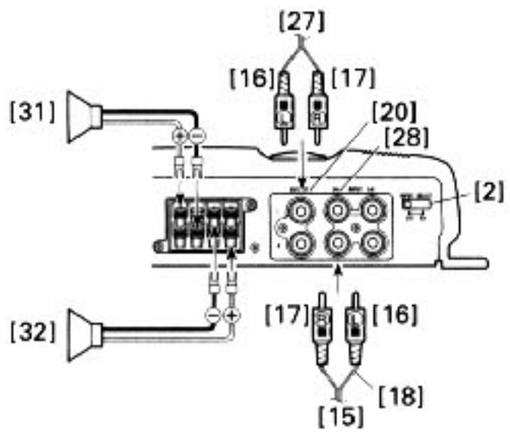

Fig. 16

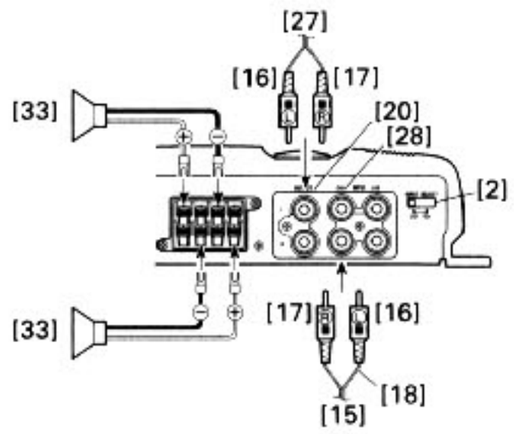

Fig. 17

Two-channel mode (stereo) (Fig. 16)

[2] RCA Input Select Switch
Slide this switch to the left.
[15] From car stereo (RCA output)
[16] White
[17] Red
[18] Connecting wire with RCA plug (sold separately)
[20] RCA output jack
[27] To a separate amplifier (RCA input)
[28] RCA input jack A
[31] Speaker (right)
[32] Speaker (left)

Two-channel mode (mono) (Fig. 17)

[2] RCA Input Select Switch
Slide this switch to the left.
[15] From car stereo (RCA output)
[16] White
[17] Red
[18] Connecting wire with RCA plug (sold separately)
[20] RCA output jack
[27] To a separate amplifier (RCA input)
[28] RCA input jack A
[33] Speaker (mono)

(Fig. 10)

[35] Tapping-screws (4 × 18 mm)
[36] Drill a 2.5-mm-diameter hole
[37] Floor mat or chassis

Connecting the Speaker Output Terminals

1. Expose the end of the speaker wires by about 10 mm and twist it using nippers or a cutter.

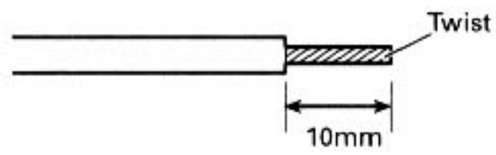

Fig. 18

2. Attach lugs to speaker wire ends.

- Use pliers, etc., to crimp lugs to wires.

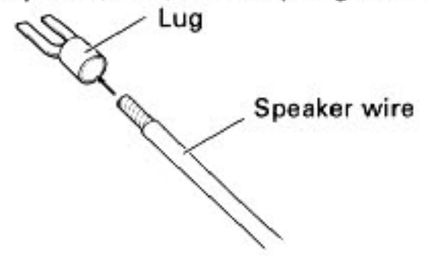

Fig. 19

3. Connect the speaker wires to the speaker output terminals.

- Fix the speaker wires securely with the terminal screws.

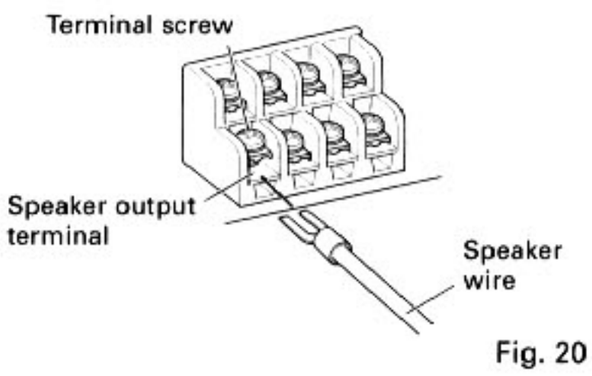

Fig. 20

Specifications

Power source	14.4 V DC (10.8 — 15.6 V allowable)
(ES model)	14.4 V DC (10.8 — 15.1 V allowable)
Grounding system	Negative type
Current consumption	18 A (at continuous power, 4 Ω)
Average current drawn*	5.5 A (4 Ω for four channels)
	10 A (4 Ω for two channels)
Fuse	25 A
Dimensions	206 (W) × 50 (H) × 270 (D) mm
Weight	2.9 kg (6.4 lbs.)(Leads for wiring not included)
Maximum power output	60 W × 4 / 140 W × 2 (EIAJ)
Continuous power output	30 W × 4 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.08% THD)
	70 W × 2 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.8% THD)
	35 W × 4 (at 14.4 V, 2 Ω, 20 — 20,000 Hz, 0.8% THD)
(UC model only)	20 W × 4 (at 12 V, 4 Ω, 20 — 20,000 Hz, 0.08% THD)
	50 W × 2 (at 12 V, 4 Ω, 20 — 20,000 Hz, 0.8% THD)
	25 W × 4 (at 12 V, 2 Ω, 20 — 20,000 Hz, 0.8% THD)
Load impedance	4 Ω (2 — 8 Ω allowable)
	(Bridge connetion: 4 — 8 Ω allowable)
Frequency response	10 — 50,000 Hz (+0 dB, –1 dB)
Signal-to-noise ratio	108 dB (IHF – A network)
(ES model)	108 dB (ICE – A network)
Separation	65 dB (1 kHz)
Low pass filter	Cut off frequency: 80 Hz
	Cut off slope: –18 dB/oct
High pass filter	Cut off frequency: 80 Hz
	Cut off slope: –12 dB/oct
Bass boost	Frequency: 40 — 120 Hz
	Gain: 0 — 12 dB
Input level / impedance	0.4 — 4 V / 22 kΩ

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

***Average current drawn**
The average current drawn is nearly the maximum current drawn by this unit when an audio signal is input. Use this value when working out total current drawn by multiple power amplifiers.

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